

AMENDMENTS TO THE CLAIMS

1. **(Currently amended)** A vaccine composition for vaccinating dogs comprising an agent capable of raising an immune response against *Mycoplasma cynos* (*M. cynos*) in a dog, wherein said agent comprises inactivated or attenuated *M. cynos*, and wherein said immune response is protective against Canine Infectious Respiratory Disease (CIRD).

2.-7. **(Canceled)**

8. **(Previously presented)** A composition comprising a vaccine composition according to Claim 1 and a pharmaceutically acceptable carrier, diluent or adjuvant.

9. **(Previously presented)** The vaccine composition according to Claim 1 further comprising any one or more of:

an agent capable of raising an immune response in a dog against canine respiratory coronavirus (CRCV);

an agent capable of raising an immune response in a dog against canine parainfluenzavirus (CPIV);

an agent capable of raising an immune response in a dog against canine adenovirus type 2 (CAV-2);

an agent capable of raising an immune response in a dog against canine herpesvirus (CHV); and

an agent capable of raising an immune response in a dog against *Bordetella bronchiseptica* (*B. bronchiseptica*).

10. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CRCV comprises inactivated or attenuated CRCV.

11. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CRCV comprises a Spike protein or a hemagglutinin-esterase (HE) protein of CRCV, or an immunogenic portion of the Spike or HE protein.

12. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CPIV comprises inactivated or attenuated CPIV.

13. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CAV-2 comprises inactivated or attenuated CAV-2.

14. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against CHV comprises inactivated or attenuated CHV.

15. **(Previously presented)** A vaccine composition according to Claim 9 wherein the agent capable of raising an immune response in a dog against *B. bronchiseptica* comprises inactivated or attenuated *B. bronchiseptica*.

16. **(Previously presented)** A method of vaccinating a dog against canine infectious respiratory disease (CIRD) comprising administering to the dog a vaccine composition according to Claim 1.

17. **(Previously presented)** A method of treating CIRD in a dog comprising administering to the dog a vaccine composition according to Claim 1.

18. **(Withdrawn)** A method of stimulating an immune response against *M. cynos*, the method comprising administering to the dog an agent capable of raising an immune response against *M. cynos* in a dog.

19. **(Withdrawn)** The method according to Claim 18 further comprising administering to the dog any one or more of:

an agent capable of raising an immune response against *S. zooepidemicus* in a dog;

an agent capable of raising an immune response against a *Chlamydophila* in a dog

an agent capable of raising an immune response in a dog against CRCV;

an agent capable of raising an immune response in a dog against CPV;

an agent capable of raising an immune response in a dog against CAV-2;

an agent capable of raising an immune response in a dog against CHV; and

an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

20.-26. **(Cancelled)**

27. **(Withdrawn)** A kit of parts for a vaccine composition, comprising any one or more of:

- (a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog;
 - (b) an agent capable of raising an immune response against *M. cynos* in a dog; and
 - (c) an agent capable of raising an immune response against a *Chlamydomphila* in a dog,
- and a pharmaceutically acceptable carrier, diluent or adjuvant.

28. **(Withdrawn)** The kit according to Claim 27 further comprising any one or more of:

- (d) an agent capable of raising an immune response in a dog against CRCV;
- (e) an agent capable of raising an immune response in a dog against CPIV;
- (f) an agent capable of raising an immune response in a dog against CAV-2;
- (g) an agent capable of raising an immune response in a dog against CHV; and
- (h) an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

29. **(Withdrawn)** A method of making an antibody that specifically binds to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila* comprising raising an immune response to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila*, or an immunogenic fragment thereof in an animal, and preparing an antibody from the animal or from an immortal cell derived therefrom.

30. **(Withdrawn)** A method of obtaining an antibody that specifically binds to any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila* comprising selecting an antibody from an antibody-display library using any one or more of *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila*, or an immunogenic fragment thereof.

31. **(Withdrawn)** An antibody that specifically binds to *S. zooepidemicus*, *M. cynos* or a *Chlamydomphila*.

32. **(Withdrawn)** A method of passively immunising a dog against CIRD comprising administering to the dog one or more antibodies that specifically bind to one or more of *S. zooepidemicus*, *M. cynos*, and a *Chlamydophila*.

33. **(Withdrawn)** A method of treating CIRD in a dog comprising administering to the dog one or more antibodies that specifically bind to one or more of *S. zooepidemicus*, *M. cynos*, and a *Chlamydophila*.

34. **(Withdrawn)** A method according to Claim 32 further comprising administering to the dog antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

35.-37. **(Cancelled)**

38. **(Withdrawn)** A composition comprising any two or more of an antibody that specifically binds to *S. zooepidemicus*, an antibody that specifically binds to *M. cynos*, and an antibody that specifically binds to a *Chlamydophila*.

39. **(Withdrawn)** A composition according to Claim 38 further comprising antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

40. **(Original)** A vaccine composition comprising:

(b) an agent capable of raising an immune response against *M. cynos* in a dog;

and

(d) an agent capable of raising an immune response against CRCV in a dog.

41. **(Original)** The vaccine composition according to Claim 40 further comprising any one or more of:

(c) an agent capable of raising an immune response against a *Chlamydophila* in a dog;

(e) an agent capable of raising an immune response in a dog against CPIV;

(f) an agent capable of raising an immune response in a dog against CAV-2;

(g) an agent capable of raising an immune response against CHV in a dog; and

(h) an agent capable of raising an immune response in a dog against *B. bronchiseptica*.

42. **(Original)** The vaccine composition according to Claim 40 further comprising:

(a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog.

43. **(Withdrawn)** A method of determining whether a dog has been exposed to a *Chlamydomphila* species associated with CIRD, the method comprising:

- (a) obtaining a suitable sample from the dog; and
- (b) identifying a *Chlamydomphila* species associated with CIRD, or an antibody there to, in the sample.

44. **(Withdrawn)** A method according to Claim 43 wherein the *Chlamydomphila* species associated with CIRD has 23S rRNA comprising the sequence (when shown as RNA) of any of SEQ ID No: 1 to 8.

45. **(Withdrawn)** A method of determining whether a dog has or is susceptible to CIRD, the method comprising:

- (a) obtaining a suitable sample from the dog; and
- (b) identifying any one or more of *S. zooepidemicus* or *M. cynos* or *Chlamydomphila*, or an antibody to any of these, in the sample.

46. **(Withdrawn)** A method according to Claim 45 wherein the *S. zooepidemicus* or *M. cynos* or *Chlamydomphila* is identified using an antibody.

47. **(Withdrawn)** A method according to Claim 45 wherein the *S. zooepidemicus* or *M. cynos* or *Chlamydomphila* is identified using a nucleic acid.

48. **(Withdrawn)** A method according to Claim 45 wherein the anti-*S. zooepidemicus* antibody is detected using a *S. zooepidemicus* or an antigenic portion thereof.

49. **(Withdrawn)** A method according to Claim 45 wherein the anti-*M. cynos* antibody is detected using a *M. cynos* or an antigenic portion thereof.

50. **(Withdrawn)** A method according to Claim 45 wherein the anti-*Chlamydomphila* antibody is detected using a *Chlamydomphila* or an antigenic portion thereof.

51. **(Withdrawn)** A method according to Claim 43 wherein the sample is an antibody-containing sample.

52. **(Withdrawn)** An immunosorbent assay for detecting antibodies associated with CIRD, the assay comprising:

a solid phase coated with any one or more of (a) an agent capable of raising an immune response against *S. zooepidemicus* in a dog; (b) an agent capable of raising an immune response against *M. cynos* in a dog; and (c) an agent capable of raising an immune response against a *Chlamydomphila* in a dog;

and a detectable label conjugate which will bind to the antibodies bound to the solid phase.

53. **(Withdrawn)** An immunosorbent assay according to Claim 52 wherein the solid phase contains any two or all three of (a), (b) and (c).

54. **(Withdrawn)** A solid phase substrate coated with any one or two or all three of (a), (b) and (c) as defined in Claim 52.

55. **(Withdrawn)** A method according to Claim 33 further comprising administering to the dog antibodies that specifically bind to any one or more of CRCV, CPIV, CAV-2, CHV, and *B. bronchiseptica*.

56. **(Withdrawn)** The method of Claim 51, wherein the antibody-containing sample is selected from the group consisting of serum, saliva, tracheal wash and branchiolar lavage.

57. **(Previously presented)** The vaccine composition according to Claim 1 further comprising an agent capable of raising an immune response against *Streptococcus equi sub species zooepidemicus* (*S. zooepidemicus*) in a dog.

58. **(Previously presented)** The vaccine composition according to Claim 57 wherein the agent capable of raising an immune response against *S. zooepidemicus* in a dog comprises inactivated or attenuated *S. zooepidemicus*, or a structural protein of *S. zooepidemicus* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

59. **(Previously presented)** The vaccine composition according to Claim 1 further comprising an agent capable of raising an immune response against a *Chlamydomphila* in a dog.

60. **(Previously presented)** The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against *Chlamydomphila* comprises inactivated or attenuated *Chlamydomphila abortus*, or a structural protein of *Chlamydomphila*

abortus or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

61. **(Previously presented)** The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or attenuated *Chlamydophila psittaci*, or a structural protein of *Chlamydophila psittaci* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

62. **(Previously presented)** The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or attenuated *Chlamydophila felis*, or a structural protein of *Chlamydophila felis* or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said structural protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.

63. **(Previously presented)** The vaccine composition according to Claim 59 wherein the agent capable of raising an immune response in a dog against a *Chlamydophila* comprises inactivated or. attenuated *Chlamydia muridarum*, *Chlamydia pecorum*, *Chlamydia pneumoniae*, *Chlamydia suis* or *Chlamydia trachomatis*, or a structural protein of *Chlamydia muridarum*, *Chlamydia pecorum*, *Chlamydia pneumoniae*, *Chlamydia suis* or *Chlamydia trachomatis*, or an immunogenic portion thereof, or a sequence variant of said structural protein or immunogenic portion thereof, or a nucleic acid encoding said immunogenic protein, portion or sequence variant, wherein said sequence variant has at least 90% sequence identity to the polypeptide sequence of said structural protein or immunogenic portion thereof.